What is claimed is:

1. A method of amplifying specific target nucleic acids in a mixed sample of nucleic acids comprising:
   a. introducing said target nucleic acids onto a bioelectronic microchip having a plurality of electronically addressable capture sites;
   b. electronically addressing said target nucleic acids to specific capture sites, said capture sites further having connected thereto capture probes that are specific for said target nucleic acids;
   c. hybridizing said target nucleic acids and said amplicons to said capture probes; and
   d. subjecting said target nucleic acids to a nucleic acid sequence-based amplification reaction to form amplicons of said target.

2. The method of claim 1 wherein said electronic addressing of target nucleic acids in (b) includes the passing of a sufficient negative charge through an electrode associated with said capture site to create electronically induced stringency to remove mis-matched hybridization between said capture probes and non-target nucleic acids in said sample.
3. The method of claim 2 wherein said electronic addressing is used to enhance nucleic acid amplification for forming amplicons in amplification reactions selected from the group consisting of PCR, strand displacement amplification, allele-specific strand displacement amplification, anchored strand displacement amplification, ligation-based strand displacement amplification, and NASBA.
4. The method of claim 1 further comprising the step of thermally denaturing said target nucleic acid and amplicons on said capture site after said amplification.
5. The method of claim 1 further comprising the step of electronically denaturing said target nucleic acid and amplicons on said capture site after said amplification.
6. The method of claim 1 wherein said capture probes serve as primers for amplifying said target nucleic acids.
7. The method of claim 5 wherein said primers are biotinylated.
8. The method of claim 1 further comprising the step of introducing a reporter

oligonucleotide during or after amplification of said target nucleic acid that is specific for said target.

9. A method of amplifying specific target nucleic acids in a mixed sample of nucleic acids comprising:
    a. introducing said target nucleic acids onto a bioelectronic microchip having a plurality of electronically addressable capture sites;
    b. electronically addressing said target nucleic acids to specific capture sites, said capture sites further having connected thereto capture probes that are specific for said target nucleic acids;
    c. subjecting said target nucleic acids to a nucleic acid sequence-based amplification reaction in solution above said capture sites to form amplicons of said target; and
    d. electronically hybridizing said target nucleic acids and said amplicons to said capture probes.

10. The method of claim 9 wherein said electronic addressing of target nucleic acids in (b) and (d) includes the passing of a sufficient negative charge through an electrode associated with said capture site to create electronically induced stringency to remove mis-matched hybridization between said capture probes and non-target nucleic acids in said sample.
11. The method of claim 9 wherein said capture probes serve as primers for amplifying said target nucleic acids.
12. The method of claim 11 wherein said primers are biotinylated.
13. The method of claim 9 further comprising the step of introducing a reporter oligonucleotide during or after amplification of said target nucleic acid.
14. The method of claim 9 further comprising the step of electronically denaturing said target nucleic acid and amplicons on said capture site after said amplification.
15. The method of claim 9 further comprising the step of thermally denaturing said target nucleic acid and amplicons on said capture site after said amplification.
16. A method for the amplification, multiplex assaying, and detection of target nucleic acids of interest in a mixed sample using a bioelectronic microchip comprising:

a. introducing at least one of said target nucleic acids of interest onto a bioelectronic microchip having a plurality of electronically addressable capture sites;

b. electronically addressed to said target nucleic acids to any of said plurality of capture sites;

c. amplifying said target nucleic acids to form amplicons of said target nucleic acids;

d. electronically addressing said amplicons to any of said plurality of electronically addressable capture sites;

e. capturing said amplicons and target nucleic acids onto the capture sites to which said amplicons and target nucleic acids are addressed by capture probes that have specificity for binding to said amplicons; and

f. detecting the presence of said captured amplicons and said targets.

17. The method of claim 16 wherein the target nucleic acid amplification is by nucleic acid sequence-based amplification.

18. The method of claim 16 wherein said electronic addressing of target nucleic acids in (b) and (d) includes the passing of a sufficient negative charge through an electrode associated with said capture site to create electronically induced stringency to remove mis-matched hybridization between said capture probes and non-target nucleic acids in said sample.

19. The method of claim 16 wherein said amplification of (c) is carried out in solution above said capture sites using non-anchored primers.

20. The method of claim 16 wherein said amplification of (c) is carried out on said capture sites using anchored primers.

21. A method of claim 16 wherein said amplification, multiplex assaying and detecting are carried out either consecutively or simultaneously in relation to one another.

22. The method of claim 16 further comprising the step of thermally denaturing said target nucleic acid and amplicons on said capture site after said amplification in (c).

23. A method of claim 16 wherein detection of amplicons is by at least one of fluorescence, chemiluminescence, and electrochemiluminescence.

24. A method of claim 16 wherein said amplification is carried out in part using noncleavable primers.

25. A kit for carrying out NASBA-based SDA reactions for use on a bioelectronic microchip comprising:

    a. one or more oligonucleotides specific for Factor V, Hemochromotosis, or a bacterium, which oligonucleotides comprise amplification primers, bumper primers, capture probes, and/or signal probes selected from the group consisting of Seq. Id. Nos. 1-62.

26. A kit according to claim 25 wherein said signal probes are labeled with a detectable label.